

AMENDMENTS TO THE DRAWINGS

Please amend Fig. 3 to correct typographical errors as shown on the appended annotated Fig. 3.

REMARKS

This Amendment and Response is being submitted in response to the Office Action mailed 07/07/2005.

Claims 1- 8 and 10-12 were pending in the application at the time the office action was issued. Claims 9 and 13-18 have been previously withdrawn in response to a restriction requirement in the case. Group 1 claims, claims 1-8 and 10-12, were elected for prosecution.

In the Specification:

The title of the invention was stated to be “not descriptive” and a new title, clearly indicative of the invention to which the claims are directed, was required. The title has been amended, above.

Specification including Claim Objections:

In the Specification including Claims the Examiner requested that the spelling “characterisation” be changed to “characterization” instead. These changes have been made throughout the Specification including claim, above.

Claim Rejections - 35 U.S.C. 102(b)

Claims 1-8 and 10-12 were rejected under 35 U.S.C. 102(b) as being anticipated by Kirka et al., US Patent 5,706,221. The reference to patent number “5,706,221” appears to have been a typographical error. Applicant’s undersigned representative has confirmed by telephone with Examiner Patel that the intended patent number citation for the Kirka reference is “5,706,627.”

The Examiner stated that Kirka taught the invention including system and method of independent claims 1 and 10. Applicant respectfully asserts that Kirka does not disclose elements of the system or methodology of claims 1 and 10, respectively, of the

present invention. Kirka discloses a Control System for A Packaging Machine that has features which may incidentally detect some type of undesirable machine performance. On the other hand, applicant's invention has elements and features that systematically and methodically identify abnormal operation of a specific mechanism of a packaging machine.

The Examiner stated that applicant's element of "a sampling entity arranged to sample a signal issued, when in use, to a servo-motor, the signal corresponding to torque values of the servo-motor" is taught in Kirka as "the fault detection unit arranged to detect faults in the position and speed of the servomotor which is obtained by monitoring signals sent from a resolver disposed on the shaft of the servomotor of the packing machine...." Passages of Kirka are cited for this proposition. Applicant's element relates to a sampling device that samples an electrical signal that is issued to a servo-motor which signal corresponds to torque values of the servo-motor while the motor is in use. This element is essential to the remaining features of applicant's invention. Kirka, on the other hand, discloses some type of monitor that detects a signal from a resolver (which is typically a mechanical device) that is disposed upon a shaft of a servo-motor. Kirka discloses that the signal is indicative of position and speed of the servomotor. Kirka does not describe what is meant in column 6 by a fault or a fault detection unit. The monitoring of a signal from a resolver mounted upon the shaft of a servo-motor does not anticipate sampling a signal issued to a servo motor wherein the signal corresponds to the torque values of the servo-motor.

The Examiner stated that applicant's element of "a spectrum analyzer for generating a spectral analysis of the sampled signal" is taught by Kirka's "measurements of the servomotor are sent to central processing unit for creating motion profile and further analyzing the motion profile for debugging and monitoring of the servo amplifier and possibly (emphasis added by applicant) for detecting faults." Passages of Kirka were cited. Applicant's element is a device that takes the signal sampled by the sampler element and generates a spectral analysis thereof (representation of a plurality of

frequencies that comprise the signal). Examiner has indicated that “measurements of the servomotor are sent to central processing unit for creating motion profile....” However, Kirka does not seem to support this statement. Instead, in column 6, Kirka states that Kirka’s signals from the resolver are converted into position and angular speed measurements, which in turn, are sent to a position/velocity controller 370 and a phase controller 375 software. Then Kirka notes that “[T]he position/velocity controller 370 interfaces with ramp-generating software 380 and central unit software 390.” Kirka then states that “[T]he central unit software 390 receives motion profile information from the PAM 90 through a process interface.” Thus, Kirka’s “motion profile” is distinct from Kirka’s “position and angular speed measurements” derived from the signals from the resolver. Line 22 of column 6 further indicates that the motion profile is “programmed” rather than derived from the signals and measurements described above. The “measurements” and “motion profile” are two distinct elements that enter the central unit software 390 for processing to run Kirka’s packaging machine; and neither is equivalent to or anticipates applicant’s spectrum analyzer that generates a spectral analysis of sampled signals.

Although the Examiner cited applicant’s element of “a processing unit coupled to a storage device for storing a characterization of a mechanical element coupled to the servo-motor and corresponding to a state of operation, the characterization corresponding to at least one predetermined value for each of at least one frequency of the signal,” no anticipatory element was cited from Kirka. The Examiner cited columns of the Kirka specification. However, the text cited does not describe an element or feature that anticipates applicant’s processing unit feature cited by Examiner.

The Examiner stated that applicant’s element of “wherein the processing unit is arranged to determine, when in use, abnormal operation of the mechanical element using the spectral analysis of the sampled signal and the characterization of the mechanical elements” is taught by Kirka’s as “the control system for packing machine is capable of determining abnormal or faulty operation.” This statement is not found in Kirka and is a

conclusion drawn that does not anticipate applicant's element cited by Examiner. The second portion of Examiner's statement, a quote from Kirka, namely, "[T]he PAM 90 which may be programmed to execute any number motion profile to carry various packaging process steps..." does not in any way relate to the element of applicant's invention that Examiner has cited. Further, it would not be possible for Kirka to have an element that anticipates the element cited by the Examiner immediately above because Kirka lacks all of the previous elements cited that are acted upon by applicant's processing unit. As stated previously in these remarks, Kirka lacks a spectral analysis or anything equivalent thereto. Kirka also does not possess the characterization element of applicant's invention to process. Therefore, Kirka cannot have a processing unit that utilizes these elements to determine abnormal operation of mechanical elements.

With respect to claim 2, the Examiner stated that "Kirka teaches the system and the method wherein the state of operation is normal operation." To support this assertion Examiner referred to col. 16, line 53 to col. 17, line 18-30. Applicant is not certain what portion of the text of Kirka is meant to be referred to by this reference. However, in general, most of the text from col. 16, line 53 through col. 17, line 30 discusses a "correction algorithm" which is not related to applicant's claim for normal operation that depends upon claim 1.

With respect to claims 3-5, Examiner stated that "Kirka teaches system and method wherein the processing unit is arranged to determine an actual sampling period of the sampling unit, the actual sampling period is derived from an expected sampling period, an expected speed and an actual position of the servo motor wherein a correction factor is calculated from the actual sampling period and the expected sampling period for applying to the sampled signal." For this statement, Examiner refers to col. 2, lines 29-49 and col. 66, lines 24-67. Applicant respectfully notes that Kirka does not contain a "column 66." Applicant is unsure of what text is referred to by the citation. Nevertheless, Kirka does not contain either the language or the elements recited by Examiner. Kirka does not disclose the use of applicant's sampling methodology. The

Kirka text cited by Examiner discusses a “correction algorithm” which is distinct from and in no way anticipates applicant’s sampling methodology.

With respect to claim 6, Examiner states that “Kirka teaches the system and method wherein the characterization is learnt.” However, as stated above, Kirka does not employ or otherwise disclose the “characterization” feature that is essential to applicant’s invention. The Kirka text cited by Examiner does not discuss or otherwise disclose characterization in anyway, learnt or otherwise.

With respect to claims 7-8, Examiner stated that Kirka teaches the system and the method wherein fuzzy logic is used to quantify the abnormal operation of the mechanical element wherein the at least one predetermined value for each of the at least one frequency of the signal is embodied in at least one respective rule applicable, when in use, to the spectral analysis ....” However, neither the phrase “fuzzy logic” nor anything that appears to be a functional equivalent is used or otherwise disclosed anywhere in Kirka, and, thus, does not anticipate this element of applicant’s invention.

With respect to claims 11-12, Examiner stated that “Kirka teaches a computer program element embodied on a computer, comprising computer program means to make a computer execute the method of claim 10 ....” As discussed above, Kirka does not disclose or otherwise anticipate the elements of applicant’s method; therefore, Kirka cannot teach a computer program to execute the method of claim 10 of applicant’s invention. Examiner refers to language from Kirka that reads “The PAM 90 which may be programmed to execute any number motion profile to carry various packaging process steps ....” As previously mentioned, Kirka’s “motion profile” is an element that pertains to the basic operation of Kirka’s machinery and is not related to applicant’s system and method for determining abnormalities.

Bonnain et al.  
10/807,056  
Attorney Docket No. D-7892

The remarks made by applicant above with respect to the citations of text by examiner are also applicable to the references Examiner has made to figures of Kirka as discussed in the text cited.

In view of the amendments and remarks made above, applicant respectfully requests that the claims be allowed and that the case be passed to issue.

Respectfully submitted,

A handwritten signature in cursive script that reads "Michael Drew".

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Michael Drew Reg. # 30,832